Kymeta Corporation

Application for Experimental Authorization for
u8 Terminal to Test with Kepler, OneWeb and SpaceX (StarLink)

Narrative Statement

(1) Name, address, phone number (also e-mail address and facsimile number, if available) of the applicant.

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(2) Description of why experimental authority is needed.

Kymeta holds blanket authority to operate its u8 antenna with all GSO satellites on the Permitted Space Station List. Call Sign E170070; File No. SES-MOD-20200611-00674. Kymeta also holds an STA for experimental authority to test with Kepler and OneWeb. Call Sign WS9XJZ, File No. 1148-EX-ST-2021. Kymeta now seeks full experimental authority to test and demonstrate, and to undertake limited market trials of, its u8 antenna with the NGSO constellations operated by Kepler, OneWeb, and SpaceX (StarLink) in the Ku-band.

(3) Description of the operation to be conducted and its purpose.

Kymeta will test and demonstrate, and conduct limited market trials of, its antenna technology from fixed and mobile locations in the United States. Kymeta requests authority to operate up to an aggregate of 50 units with the Kepler, OneWeb and SpaceX NGSO constellations. The purpose of the testing is to refine the ability of the assembled RF technology to communicate with NGSO satellites. The purpose of the demonstrations and market trials is to show the technology to prospective partners and customers.

The technical parameters are identical to the technical parameters in Kymeta's blanket authorization.

(4) Time and dates of proposed operation.

Kymeta requests experimental authority for a period of two years, commencing on or before March 1, 2022.

(5) Class(es) of station (fixed, mobile, fixed and mobile) and call sign of station (if applicable).

The transmitting station will operate in fixed and mobile (ESIMs) mode. Kymeta does not seek authority to operate from aircraft.

(6) Description of the location(s) and, if applicable, geographical coordinates of the proposed operation.

United States

(7) Transmit equipment to be used, including name of manufacturer, model and number of units.

Kymeta u8 (Ku-band antenna)

(8) Frequencies desired.

Transmit: 14.0 – 14.50 GHz
Receive: 10.70 – 12.75 GHz

Although communications will be in both directions, the application for special temporary authority does not seek authorization to receive in the space-to-earth downlink bands.

(9) Maximum output power, antenna gain, and maximum effective radiated power (ERP) or equivalent isotropically radiated power (EIRP).

16.2 W transmitter output power; 35.1dBi at 14.0 GHz; 47.2 dBW (52.42 kW) EIRP; 45.0 dBW (31.96 kW) ERP

(10) Emission designator (see §2.201 of this chapter) or describe emission (bandwidth, modulation, etc.)

Transmit: 125KG1D to 180M0G1D (channel bandwidth: 125 kHz to 180 MHz)

(11) Overall height of antenna structure above the ground (if greater than 6 meters above the ground or an existing structure, see part 17 of this Chapter concerning notification to the FAA).

The overall height of the antenna above ground level (or roof top level) will not exceed 6 meters.

(12) Additional Technical Information

Size of the antenna: 82 centimeters diameter (circular antenna)
Width of beam of transmit antenna in degrees at half-power point: 1.50
Width of beam of receive antenna in degrees at half-power point: 2.00
Satellite coverage: narrow beam (NB) and earth coverage (EC)
Transmit antenna gain: 35.1 dBi

The antenna will transmit and receive in linear polarization.
Frequency tolerance: 0.001%.

Transmit antenna azimuth: Various. The application seeks authority for the earth terminals to operate anywhere in the U.S. Thus, the azimuth will vary.
Elevation of transmit antenna MSL (in meters): Various. It will depend on the location of the earth terminal.
Elevation of transmit antenna AGL (in meters): Various. It will depend on the location of the earth terminal.

Stop buzzer POC:

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(13) Points of Communication

Kepler NGSO constellation
OneWeb NGSO constellation
StarLink NGSO constellation

(14) Certification re: Coordination

Kymeta certifies that its proposed operations are in compliance with all existing coordination agreements between the proposed satellite operators and other GSO and NGSO networks.